

## **Historic, Archive Document**

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United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Spokane,  
Washington



# Washington Water Supply Outlook

April 1, 1986





# Foreword

## How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are termed reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

## For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. Because of the limited space, snow survey measurements are not published in monthly reports. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	201 East 9th Ave., Suite 300, Anchorage, AK 99501-3687
Arizona	201 East Indianola, Suite 200, Phoenix, AZ 85012
Colorado (New Mexico)	2490 West 26th Ave., Denver, CO 80211
Idaho	304 North 8th Street, Room 345, Boise, ID 83702
Montana	10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715
Nevada	50 South Virginia Street, Third Floor, Reno, NV 89505
Oregon	1220 Southwest 3rd Ave., 16th Floor, Portland, OR 97204
Utah	4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147
Washington	360 U.S. Court House, Spokane, WA 99201
Wyoming	Federal Building, 100 East "B" Street, Casper, WY 82602

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 547, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 98502; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Saskatchewan, and N.W.T. — The Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta, T3C 1A6.

# Washington Water Supply Outlook

and

## Federal — State — Private Cooperative Snow Surveys

### **Issued by**

Wilson Scaling  
Chief  
Soil Conservation Service  
Washington, D.C.

### **Released by**

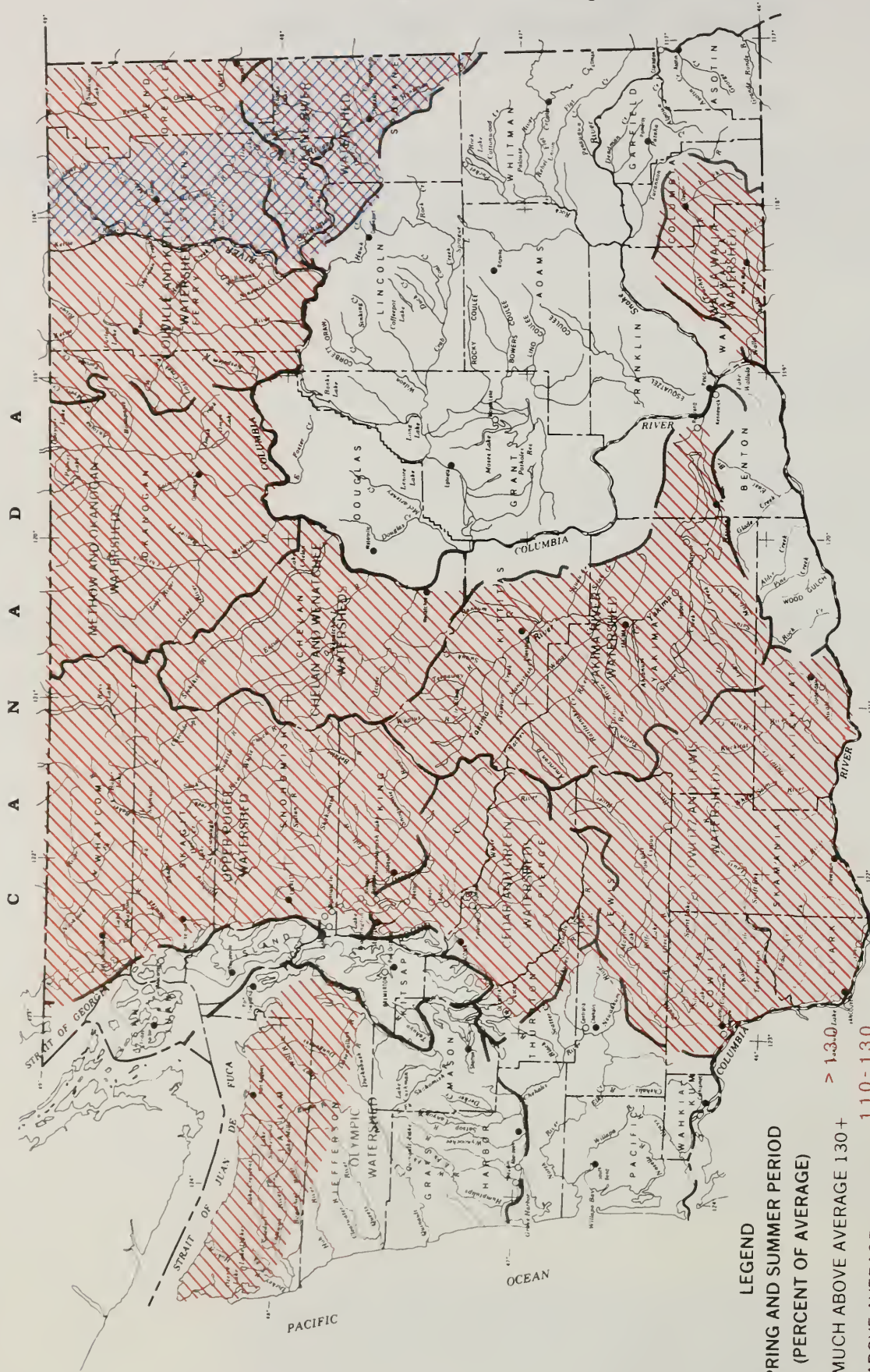
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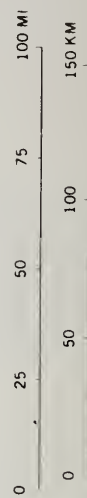




**LEGEND**  
**SPRING AND SUMMER PERIOD**  
**(PERCENT OF AVERAGE)**

- MUCH ABOVE AVERAGE 130+ > 130
- ABOVE AVERAGE 110-130 110-130
- NEAR AVERAGE 90-110 90-110
- BELOW AVERAGE 70-90 70-90
- MUCH BELOW AVERAGE 70+ LESS < 70
- NOT FORECAST
- WATERSHED BOUNDARY

**APRIL 1, 1986**  
**STREAMFLOW PROSPECTS**  
**WASHINGTON**



SOURCE: Data compiled by SCS  
Field Personnel

## GENERAL OUTLOOK

### SUMMARY:

Spring snowmelt occurred over most of Washington State during March. Streamflow was above normal in most of the major rivers. With the added streamflow, reservoir storage improved with the Yakima reservoirs going from 80% of normal to 92% of average. Temperatures were above average during March. Precipitation was near normal to slightly below normal in all sections of Washington except Walla Walla which was much above average. Streamflows are forecasted to be below normal over Washington for the coming summer months.

### SNOWPACK:

The Stemilt Drainage near Wenatchee is the only area of Washington with above average snowpack. The rest of the state is below average to much below average. Snowpack on the Olympic Basin is the lowest in the state with 33% of normal on the Elwah River and 43% on the Dungeness. Other readings in the Puget Basins include; 56% on the Baker River, 77% on the Skagit, 67% on the Skykomish and 45% on the Green River. Some East side snowpacks; Yakima 71%, Wenatchee 69%, Chelan 91%, Okanogan 78%, Pend Oreille 68% and the Spokane River at 58%.

### PRECIPITATION:

Precipitation varied over Washington during March, with 186% of average in the Walla Walla to 65% of normal in the Wenatchee drainage. The Walla Walla weather station now has 139% of normal precipitation for the water year to date. Most east side basins were slightly below normal with the following; Spokane 97%, Colville 85%, Okanogan 96% and the Yakima 75%. Some west side basins include the Cowlitz at 79%, the Green River 101%, the north Puget Sound 89% and the Olympic 102%.



#### RESERVOIRS:

The April 1 reservoir storage shows improvement over the March 1 amounts with the greatest improvement being storage in the Yakima Basin. April 1 storage in the Yakima was 677,400 acre feet or 92% of normal. Capacity for the five major Yakima reservoirs is 1,065,000 acre feet. Chelan Lake is 143% of April 1 average storage and 45% of capacity, holding 302,400 acre feet. Coeur d' Alene Lake is at 99% of capacity. Roosevelt is at 84% of capacity and 278% of the April 1 average. Ross Reservoir is at 67% of capacity and 314% of the April 1 normal storage.

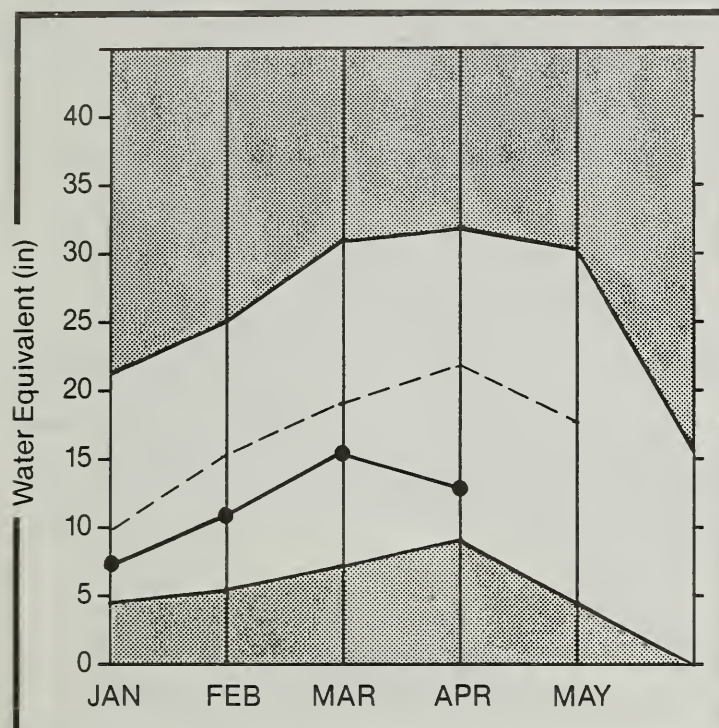
#### STREAMFLOW:

Streamflows in March were above average in all streams except the Chehalis River, which was 69% of normal. Warm weather with temperatures averaging five degrees above normal and rain brought spring melt nearly one month early to Washington State. Many of the streams were in excess of 200% of normal March runoff with the following; Kettle River 240%, Similkameen 260%, Chelan 211%, Pend Oreille 215%, Wenatchee 230% and the Snake River below Ice Harbor dam 227%. The Columbia River below Grand Coulee was 180% of normal. Streamflows for the summer are forecasted to be below normal for all areas of Washington.







# SPOKANE

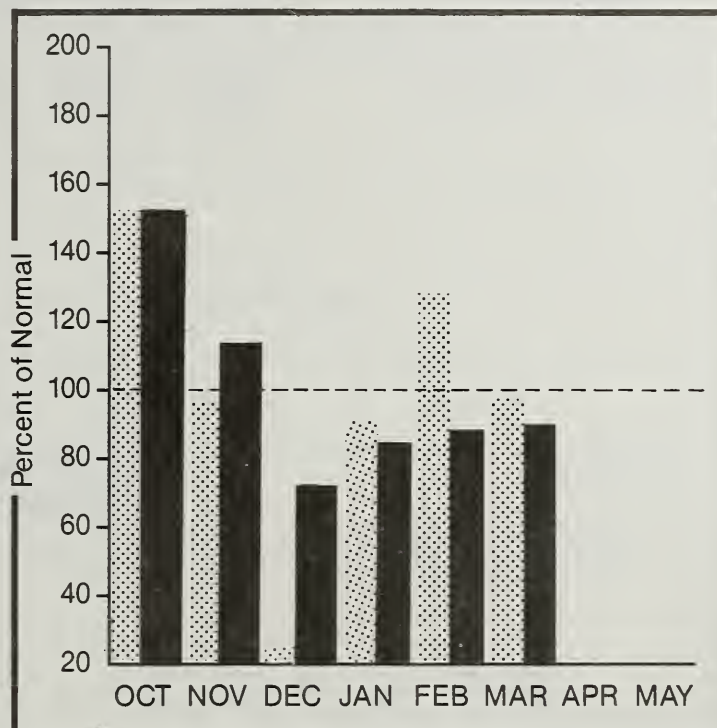
**Mountain snowpack\* (inches)**





\*Based on selected stations

Maximum  Average   
Minimum  Current 

**Precipitation\* (percent of normal)**



\*Based on selected stations

Monthly precipitation  Year to date precipitation 

## SPOKANE RIVER BASIN

### WATER SUPPLY OUTLOOK:

Warm March temperatures averaging five degrees above normal coupled with near average precipitation reduced the snowpack in the Spokane River Basin. The snowpack went from 81% of normal for March 1st to 58% of normal for April 1st. Precipitation for March was 97% of normal bringing the water year to 91% of average. Streamflow runoff continued above average with March being 198% of normal. Forecasted streamflow for the summer is 60% of average. Reservoir storage in Coeur d' Alene Lake is at 133% of normal.

For more information contact your local Soil Conservation Service office.

# SPOKANE RIVER BASIN

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
SPOKANE at Post Falls	APR-SEP	2848.0	1710.0	60	84	36				
	APR-JUL	2754.0	1650.0	59	84	36				

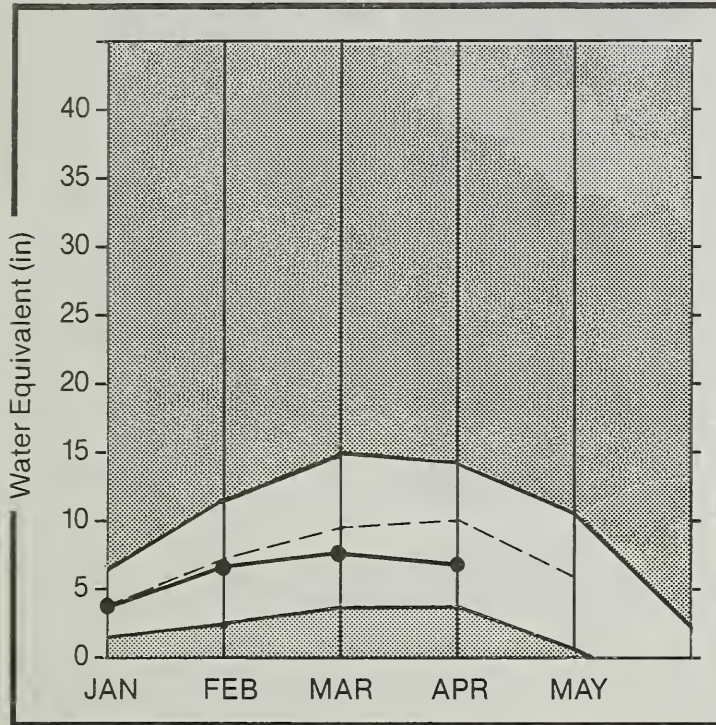
RESERVOIR STORAGE		(1000AF)		WATERSHED SNOWPACK ANALYSIS				
RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE THIS YEAR	USEABLE STORAGE LAST YEAR	USEABLE STORAGE AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE	
COEUR D'ALENE	225.1	223.1	97.1	168.2	Spokane River	19	69	75

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.


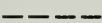




# COLVILLE AND PEND OREILLE

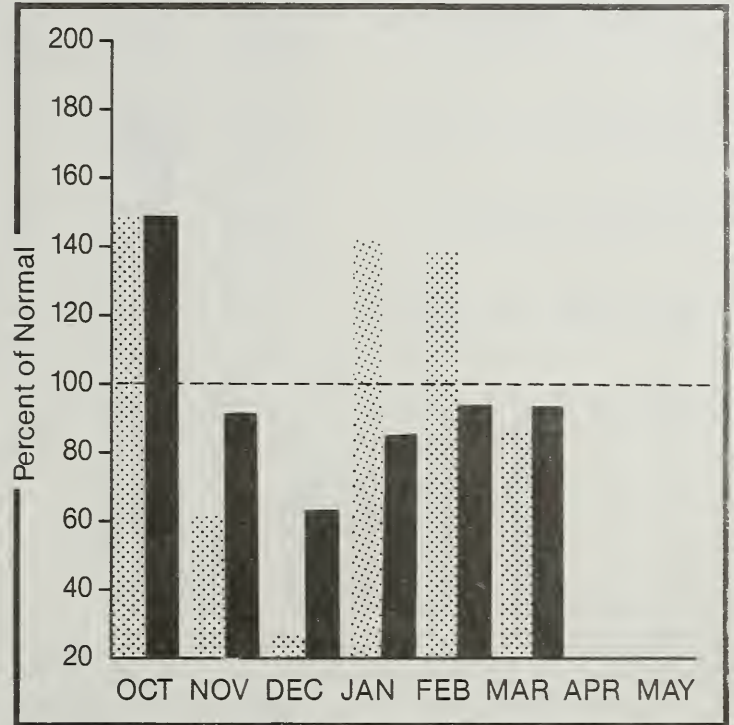
Mountain snowpack\* (inches)





\*Based on selected stations

Maximum  Average   
Minimum  Current 

Precipitation\* (percent of normal)



\*Based on selected stations

Monthly precipitation  Year to date precipitation 

## COLVILLE - PEND OREILLE RIVER BASINS

### WATER SUPPLY OUTLOOK:

Streamflow in the Colville-Pend Oreille basin was above average with the Pend Oreille River flowing 215% of normal and the Kettle at 240%. The Columbia River was 180% of average below Grand Coulee. Reservoir storage in Roosevelt was 278% of the April 1 normal with 4,784,700 acre feet of usable storage. Temperatures averaged six degrees above normal for March reducing the snowpack from its March 1 reading of near 80% to a April 1 reading of 61% on the Kettle and 55% on the Colville. Forecasted streamflow for the summer is 73% on the Pend Oreille, 64% on the Colville and 80% on the Kettle.

For more information contact your local Soil Conservation Service office.



# COLVILLE - PEND OREILLE RIVER BASINS

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
PEND OREILLE RIVER bl Box Canyon	APR-SEP	15425.0	11300.0	73	90	56				
	APR-JUL	14156.0	10400.0	73	90	56				
	APR-JUN	12227.0	8930.0	73	90	56				
COLVILLE RIVER at Kettle Falls	APR-SEP	134.0	87.0	64	104	26				
	APR-JUL	123.0	80.0	65	104	26				
	APR-JUN	114.0	99.0	86	125	40				
KETTLE RIVER nr Laurier	APR-SEP	1829.0	1470.0	80	108	52				
	APR-JUL	1738.0	1390.0	79	108	52				
	APR-JUN	1581.0	1260.0	79	108	52				
COLUMBIA RIVER at Birchbank *	APR-SEP	44605.0	43800.0	98	116	80				
	APR-JUL	35705.0	35100.0	98	116	80				
	APR-JUN	26027.0	25500.0	97	116	80				
COLUMBIA RIVER at Grand Coulee *	APR-SEP	66841.0	59800.0	89	101	77				
	APR-JUL	56169.0	49800.0	88	101	77				
	APR-JUN	44036.0	39200.0	89	101	77				

## RESERVOIR STORAGE (1000AF)

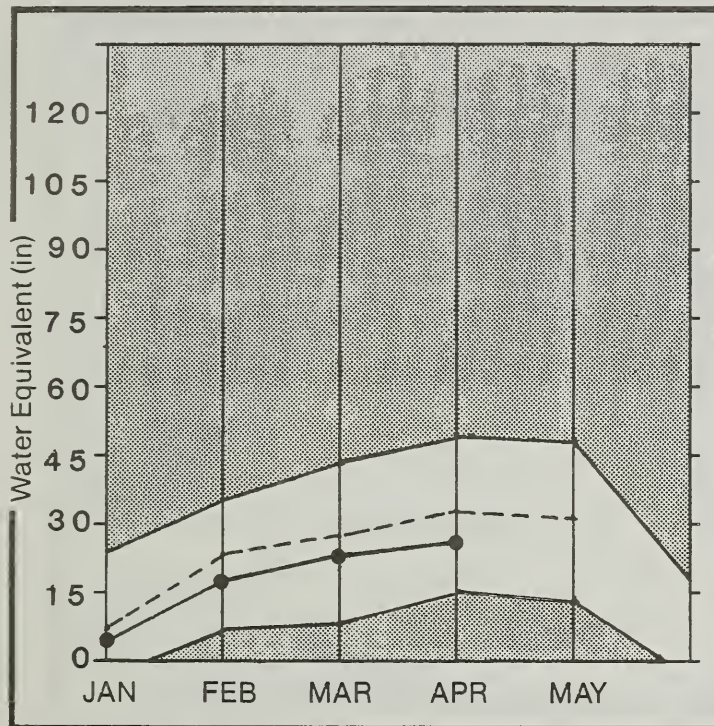
## WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVE.			LAST YR.	AVERAGE
ROOSEVELT	5232.0	4403.4	992.0	1586.0	Colville River	3	46	55
BANKS	715.0	381.3	672.2	583.0	Pend Oreille River	12	68	70
					Kettle River	9	73	62
					Omac Lake, Twin Lakes	0	0	0
					Newman Lake	0	0	0

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.

# OKANOGAN AND METHOW

Mountain snowpack\* (inches)



\*Based on selected stations

Maximum



Average



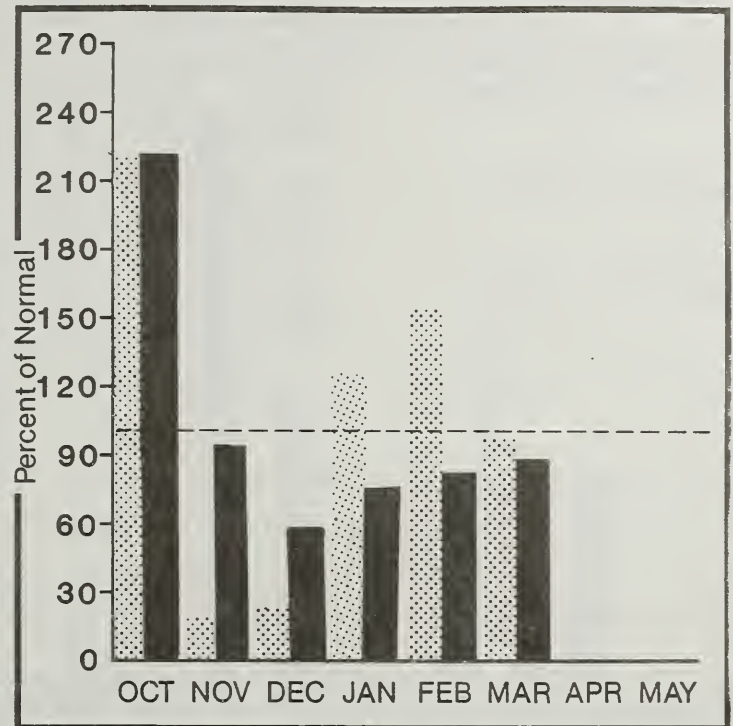
Minimum



Current



Precipitation\* (percent of normal)

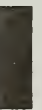


\*Based on selected stations

Monthly precipitation



Year to date precipitation



## OKANOGAN - METHOW RIVER BASINS

### WATER SUPPLY OUTLOOK:

Temperatures averaging five degrees above normal, coupled with below average precipitation for March produced streamflow of 166% of normal on the Okanogan River. The Similkameen River was 260% of March normal as much of the snowpack melted reducing the April 1 pack to 78% of average on the Okanogan. Snowpack in the Methow Drainage was 77% of average. Reservoir storage for April 1 was 102% of normal with 15,300 acre feet being stored in the Conconully lakes. Streamflows for summer are forecasted to be 80 % on the Okanogan and 88% on the Methow.

For more information contact your local Soil Conservation Service office.

# OKANOGAN - METHOW RIVER BASINS

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
SIMILKAMEEN R. nr Nighthawk	APR-SEP	1462.0	1190.0	81	99	63				
	APR-JUL	1365.0	1100.0	80	99	63				
	APR-JUN	1161.0	952.0	81	100	64				
OKANOGAN R. nr Tonasket	APR-SEP	1644.0	1320.0	80	103	57				
	APR-JUL	1497.0	1200.0	80	103	57				
	APR-JUN	1262.0	1020.0	80	104	58				
METHOW RIVER nr Pateros	APR-SEP	980.0	870.0	88	115	63				
	APR-JUL	908.0	808.0	88	115	63				
	APR-JUN	773.0	696.0	90	116	64				

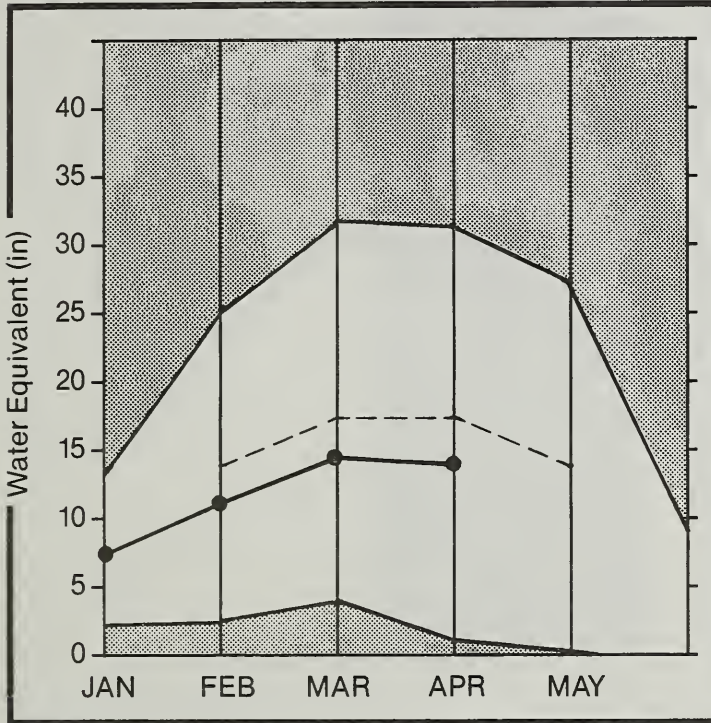
RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	THIS YEAR	LAST YEAR	AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE
CONCONULLY LAKE (SALMON)	10.5	8.0	10.4	8.0	Okanogan River	30	91 81
CONCONULLY RESERVOIR	13.0	7.3	13.0	7.0	Methow River	4	96 84

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.


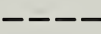




# WENATCHEE AND CHELAN

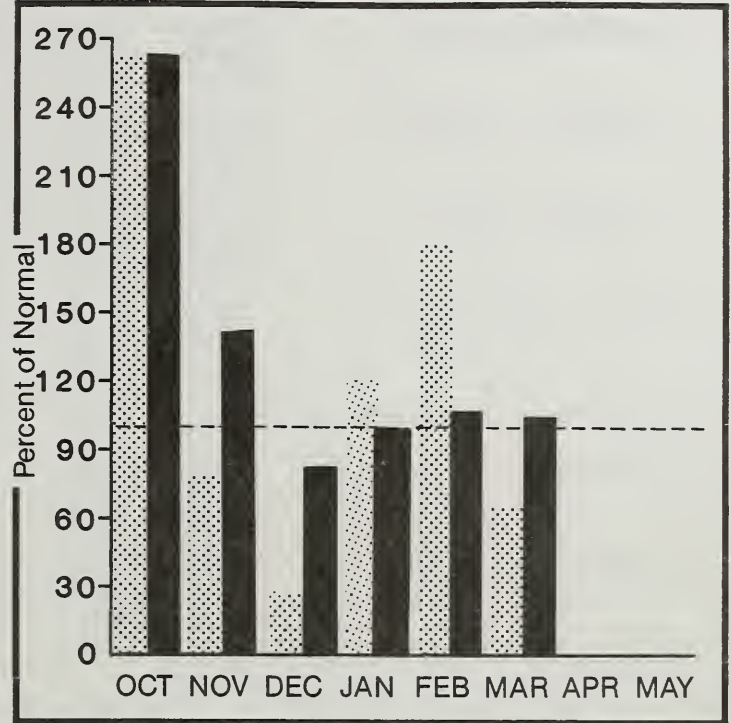
**Mountain snowpack\* (inches)**





\*Based on selected stations

Maximum  Average   
Minimum  Current 

**Precipitation\* (percent of normal)**



\*Based on selected stations

Monthly precipitation  Year to date precipitation 

## WENATCHEE - CHELAN RIVER BASINS

### WATER SUPPLY OUTLOOK:

Warm temperatures averaging five degrees above normal reduced the basin's snowpack. The Chelan went from 96% for March 1st to 91% for April 1, the Wenatchee from 91% to 69%. The Stemilt maintained its pack at 125% of normal. High temperatures produced above average streamflows with the Wenatchee at 230%, Chelan at 211% and the Columbia at 188%. Streamflows for summer are forecasted to be 84% of normal on the Wenatchee, 89% on the Chelan and 88% on the Entiat. Reservoir storage in Chelan Lake was 302,400 acre feet or 143% of normal.

For more information contact your local Soil Conservation Service office.

# WENATCHEE - CHELAN RIVER BASINS

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
CHELAN RIVER at Chelan *	APR-SEP	1203.0	1080.0	89	107	73				
	APR-JUL	1055.0	935.0	88	106	72				
	APR-JUN	826.0	751.0	90	108	74				
STEHEKIN R. at Stehekin	APR-SEP	860.0	775.0	90	101	79				
	APR-JUL	727.0	656.0	90	101	79				
	APR-JUN	553.0	503.0	90	102	80				
ENTIAT RIVER nr Ardenvoir	APR-SEP	234.6	208.0	88	89	89				
	APR-JUL	213.0	189.0	88	89	89				
	APR-JUN	172.0	155.0	90	90	90				
WENATCHEE RIVER at Plain	APR-SEP	1270.0	1070.0	84	115	53				
	APR-JUL	1113.0	935.0	84	115	53				
	APR-JUN	899.0	755.0	83	115	53				
STEMILT nr Wenatchee (miners in)	MAY-SEP	138.0	110.0	79	80	80				
ICICLE CREEK nr Leavenworth	APR-SEP	370.0	290.0	78	78	78				
	APR-JUL	340.0	265.0	77	78	78				
	APR-JUN	270.0	213.0	78	79	79				
COLUMBIA R. b1 Rock Island Dam *	APR-SEP	72781.0	65700.0	90	104	76				
	APR-JUL	61601.0	55100.0	89	103	75				
	APR-JUN	48384.0	43600.0	90	104	76				

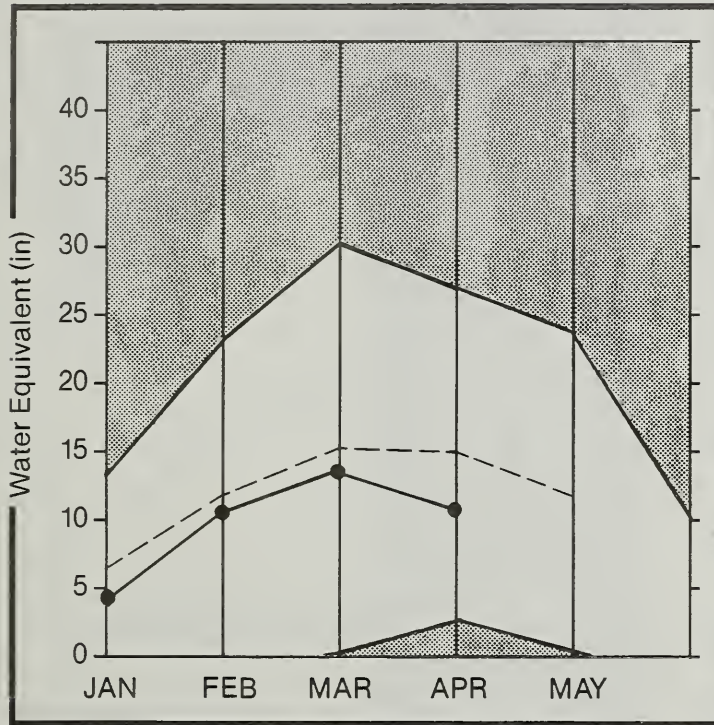
RESERVOIR STORAGE		(1000AF)			WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVE.			LAST YR.	AVERAGE
CHELAN LAKE	676.1	302.4	138.6	212.1	Chelan Lake Basin	6	114	91
					Entiat River	7	118	74
					Wenatchee River	8	72	69
					Colockum Creek	1	22	17
					Squilchuck Creek	1	91	86
					Stemilt Creek	1	103	85

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.




# YAKIMA

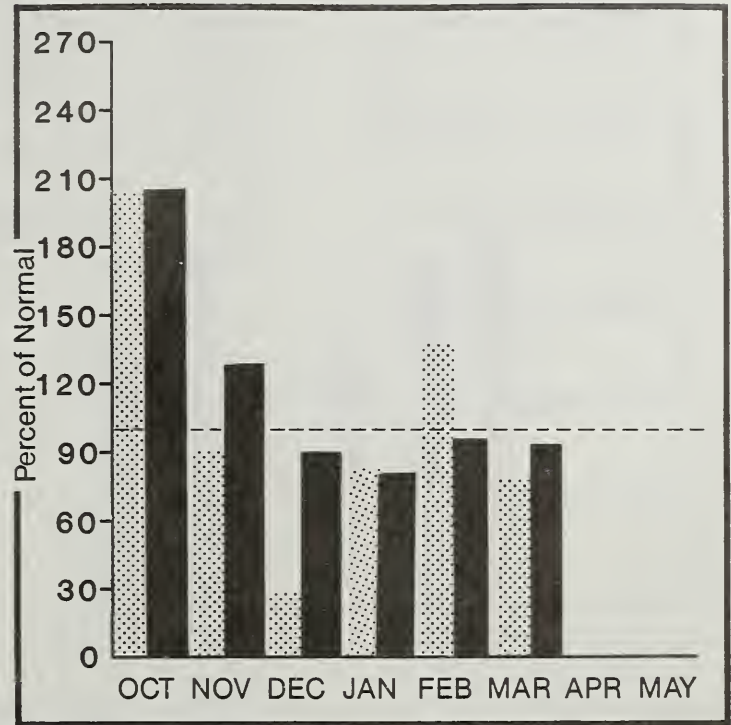
Mountain snowpack\* (inches)





\*Based on selected stations

Maximum  Average   
Minimum  Current 

Precipitation\* (percent of normal)



\*Based on selected stations

Monthly precipitation  Year to date precipitation 

## YAKIMA RIVER BASIN

### WATER SUPPLY OUTLOOK:

Streamflows were above normal in the Yakima for March with the Yakima River at Kiona flowing 181%. Temperatures averaged four degrees above normal causing snowpack to decline to 71% of normal April 1 readings, down from the March 1 readings of 87%. Reservoir storage increased to 92% of normal for the April 1 with the five major reservoirs storing 677,400 acre feet. Forecasted streamflows for the Yakima basin are; 80% for the Yakima at Martin, 83% for the Tieton, 81% for the Naches and 76% for the Ahtanum. Precipitation for March was 75% of normal bringing the water year to 90% of average.

For more information contact your local Soil Conservation Service office.



# YAKIMA RIVER BASIN

## STREAMFLOW FORECASTS

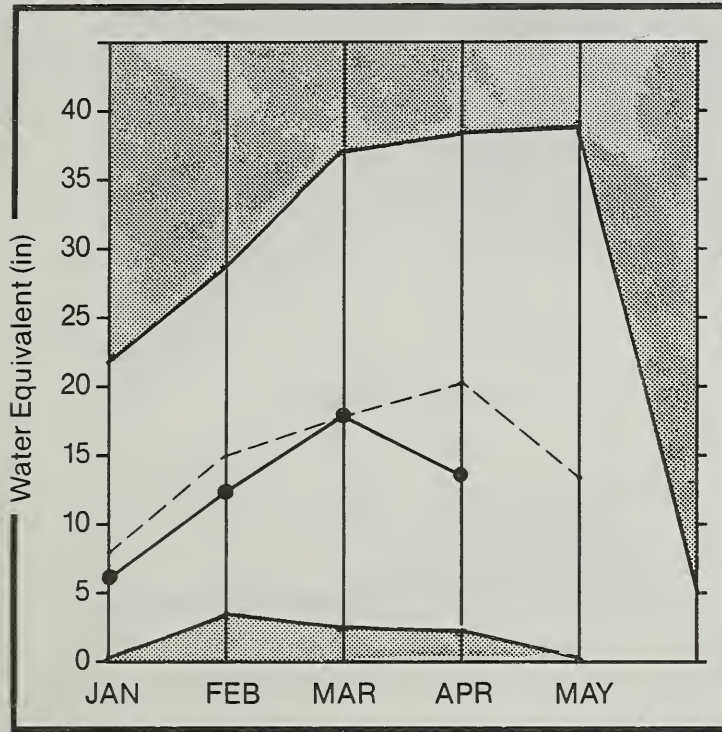
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
YAKIMA RIVER at Martin *	APR-SEP	139.0	112.0	80	91	71				
	APR-JUL	128.0	103.0	80	91	70				
	APR-JUN	111.0	89.0	80	90	70				
YAKIMA RIVER at Cle Elum *	APR-SEP	943.0	755.0	80	90	70				
	APR-JUL	854.0	684.0	80	90	70				
	APR-JUN	734.0	587.0	79	90	70				
YAKIMA RIVER nr Parker *	APR-SEP	2096.0	1660.0	79	96	62				
	APR-JUL	1898.0	1500.0	79	96	62				
	APR-JUN	1667.0	1320.0	79	96	62				
KACHESS RIVER nr Easton *	APR-SEP	121.0	97.0	80	90	70				
	APR-JUL	115.0	92.0	80	90	70				
	APR-JUN	101.0	82.0	81	91	71				
CLE ELUM RIVER nr Roslyn *	APR-SEP	463.0	380.0	82	91	73				
	APR-JUL	422.0	342.0	81	90	72				
	APR-JUN	353.0	285.0	80	90	72				
BUMPING RIVER nr Nile *	APR-SEP	142.0	118.0	83	102	64				
	APR-JUL	129.0	108.0	83	103	64				
	APR-JUN	107.0	90.0	84	103	65				
AMERICAN RIVER nr Nile	APR-SEP	124.0	103.0	83	93	73				
	APR-JUL	113.0	94.0	83	93	73				
	APR-JUN	94.0	78.0	82	93	73				
TIETON RIVER at Tieton *	APR-SEP	246.0	205.0	83	102	64				
	APR-JUL	207.0	173.0	83	102	65				
	APR-JUN	165.0	138.0	83	103	82				
NACHES RIVER nr Naches *	APR-SEP	867.0	705.0	81	101	61				
	APR-JUL	784.0	638.0	81	101	61				
	APR-JUN	667.0	540.0	80	101	61				
AHTANUM CREEK nr Tappico *	APR-SEP	47.0	36.0	76	113	40				
	APR-JUL	43.0	33.0	76	112	42				
	APR-JUN	37.0	29.0	78	114	43				

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVE.			LAST YR.	AVERAGE
KEECHELUS	157.8	113.3	90.3	110.0	Yakima River	16	70	70
KACHESS	239.0	159.2	163.6	187.0	Ahtanum Creek	2	118	59
CLE ELEM	436.9	243.4	191.4	290.0				
BUMPING LAKE	33.7	12.6	3.8	11.0				
RIMROCK	198.0	149.1	92.7	142.0				

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.

# WALLA WALLA

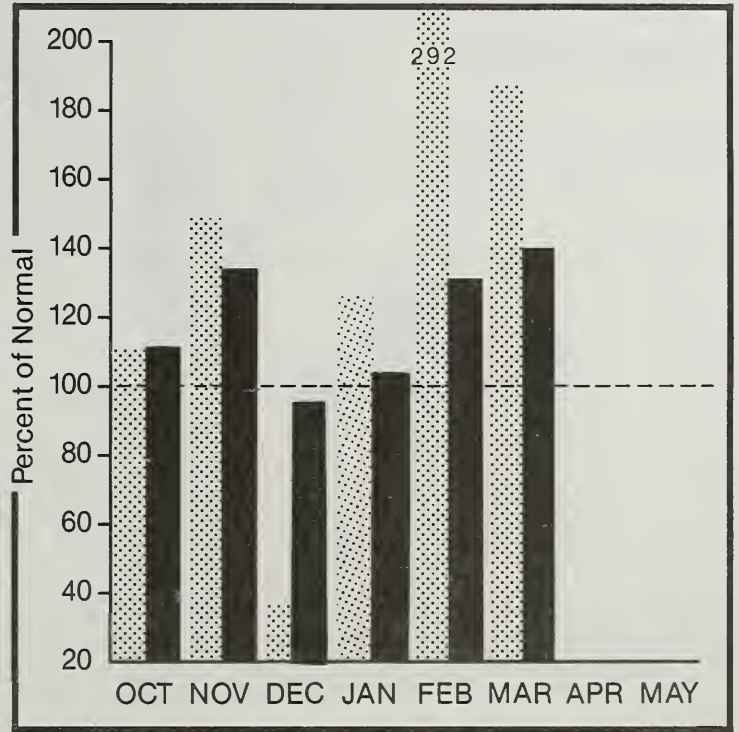
**Mountain snowpack\* (inches)**



\*Based on selected stations

Maximum ——— Average - - - - -  
Minimum [shaded] Current ●—●

**Precipitation\* (percent of normal)**



\*Based on selected stations

Monthly precipitation [dotted bar] Year to date precipitation [solid bar]

## WALLA WALLA RIVER BASIN

### WATER SUPPLY OUTLOOK:

Precipitation for the Walla Walla station was 186% of average for March with the basin at 106% of normal. Temperatures averaged five degrees above normal for March reducing the snowpack for the basin to 66% for the April 1st readings. Streamflow for March was 163% of average for the Walla Walla River and 227% for the Snake River below Ice Harbor. Forecasted streamflows are 80% on the Walla Walla River for the summer.

For more information contact your local Soil Conservation Service office.

# WALLA WALLA RIVER BASIN

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
MILL CREEK at Walla Walla	APR-SEP	17.5	14.1	80	103	63				
	APR-JUL	17.3	14.0	80	98	63				
	APR-JUN	17.1	13.8	80	99	58				
COLUMBIA R. at The Dalles *	APR-SEP	101000.0	89700.0	88	104	74				
	APR-JUL	86500.0	75700.0	87	103	73				
	APR-JUN	70100.0	62400.0	89	104	74				

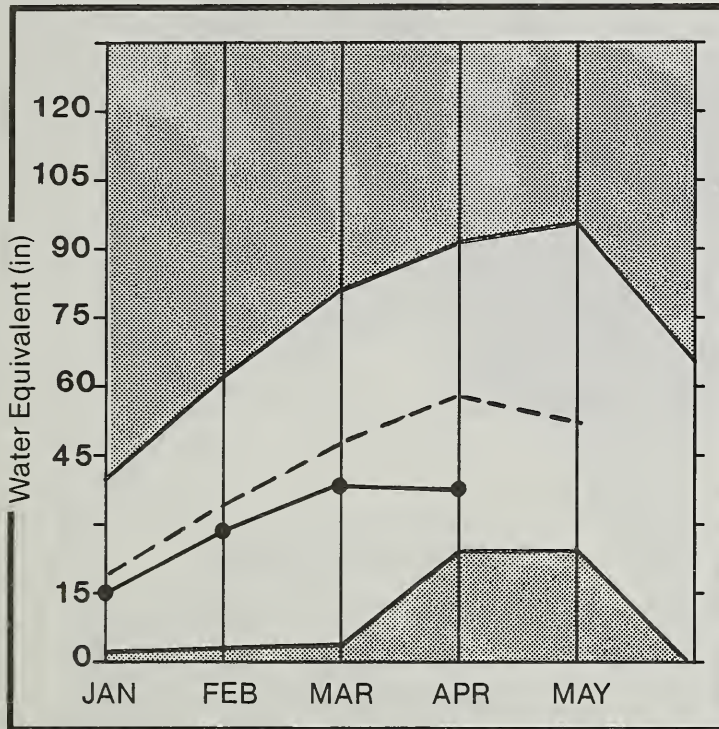
RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	*** THIS YEAR	USEABLE STORAGE LAST YEAR	*** AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE	
					Mill Creek	2	46	66

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.



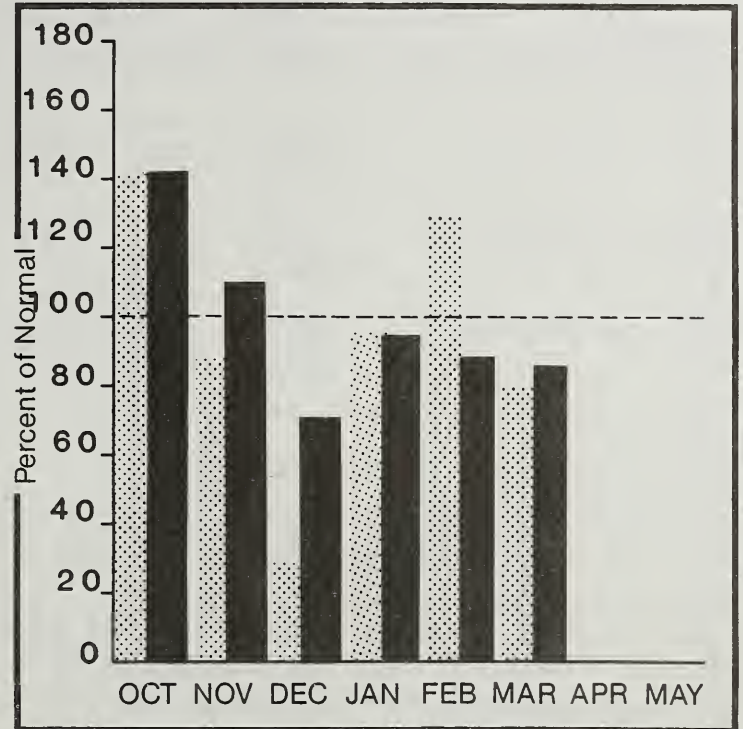
# COWLITZ AND LEWIS

Mountain snowpack\* (inches)


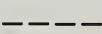





\*Based on selected stations

Precipitation\* (percent of normal)



\*Based on selected stations

Maximum  Average   
Minimum  Current 

Monthly precipitation  Year to date precipitation 

## COWLITZ - LEWIS RIVER BASINS

### WATER SUPPLY OUTLOOK:

Forecasted streamflows on the Cowlitz River for the summer is 84% and on the Lewis River 84%. Streamflows for March were 122% of average on the Cowlitz River and 180% of normal on the Columbia River.

Temperatures during March were five degrees above normal causing the snowpack to begin its spring melt nearly one month early. Snowpack was reduced to 74% of the April 1 normal. Precipitation for the Cowlitz-Lewis Basin was 79% of average for March bringing the water year to 85% of normal.

For more information contact your local Soil Conservation Service office.

# COWLITZ - LEWIS RIVER BASINS

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
LEWIS RIVER at Ariel *	APR-SEP	1249.0	1060.0	84	112	58				
	APR-JUL	1086.0	923.0	84	112	58				
	APR-JUN	961.0	785.0	81	109	55				
COWLITZ R. bl Mayfield Dam *	APR-SEP	2038.0	1730.0	84	124	46				
	APR-JUL	1778.0	1510.0	84	124	46				
	APR-JUN	1502.0	1280.0	85	124	46				
COWLITZ R. at Castle Rock *	APR-SEP	2673.0	2270.0	84	121	49				
	APR-JUL	2323.0	1970.0	84	121	49				
	APR-JUN	1980.0	1680.0	84	121	49				

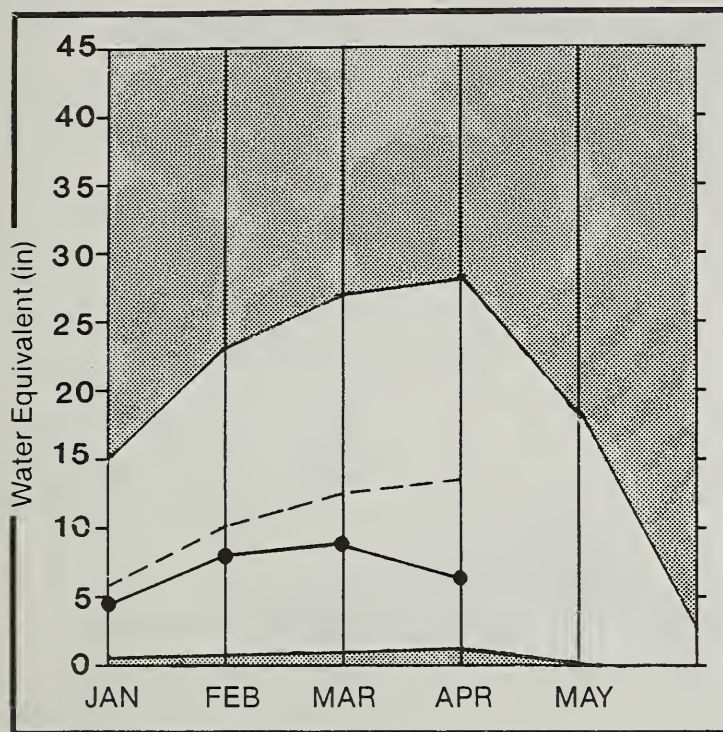
RESERVOIR STORAGE		(1000AF)	WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
	THIS YEAR	LAST YEAR AVE.			LAST YR.	AVERAGE
			Cowlitz River	2	67	62
			Lewis River	3	61	63

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.



# WHITE - GREEN

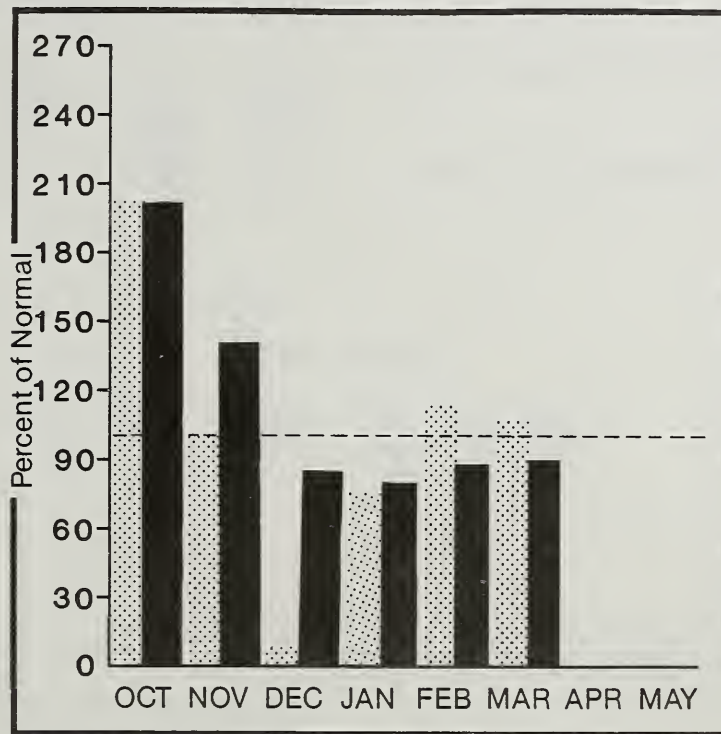
Mountain snowpack\* (inches)




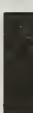
\*Based on selected stations

Maximum  Average   
Minimum  Current 

Precipitation\* (percent of normal)



\*Based on selected stations

Monthly precipitation  Year to date precipitation 

## WHITE - GREEN RIVER BASINS

### WATER SUPPLY OUTLOOK:

Snowpack continued its melt that started during February. Snow courses in the Cedar River were void of snow on the April 1 reading while the snowpack on the Green River was 45% of average and 69% on the White River. March temperatures were five degrees above average. Precipitation for the Month was 101% of normal while the water year precipitation to date is 89% of average. Streamflows are forecasted to be 70% on the Green and Cedar Rivers for the summer.

For more information contact your local Soil Conservation Service office.



# WHITE - GREEN RIVER BASINS

## STREAMFLOW FORECASTS

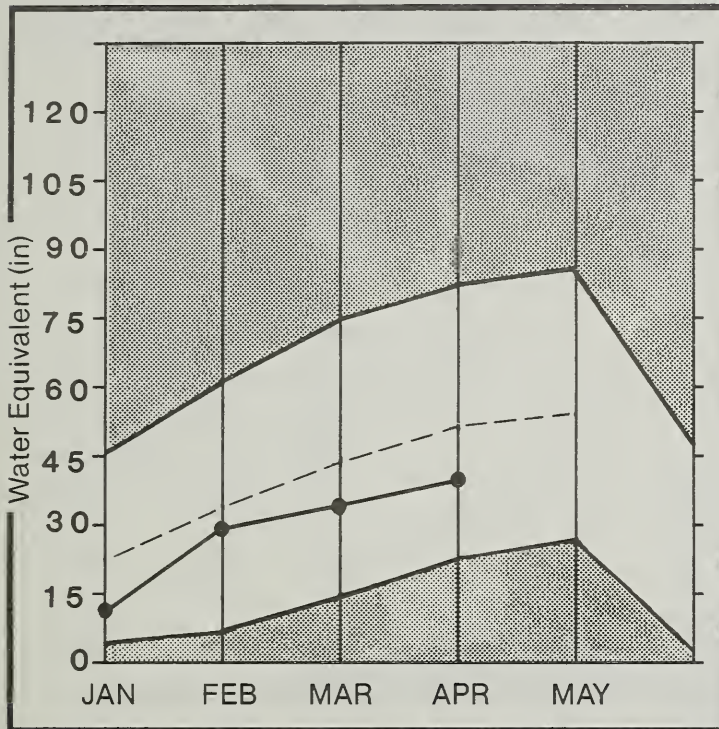
FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
GREEN RIVER bl Howard Hanson Dam *	APR-SEP	316.0	222.0	70	70	70				
	APR-JUL	284.0	200.0	70	70	70				
	APR-JUN	256.0	180.0	70	70	70				
CEDAR RIVER nr Cedar Falls	APR-SEP	93.0	66.0	70	71	71				

RESERVOIR STORAGE					(1000AF)	WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE		** USEABLE STORAGE **			WATERSHED	NO.	THIS YEAR AS % OF	
	CAPACITY		THIS	LAST			COURSES	-----	
			YEAR	YEAR	AVE.		AVE.D	LAST YR.	AVERAGE
						White River	3	74	68
						Green River	10	39	45





\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.

# NORTH PUGET SOUND

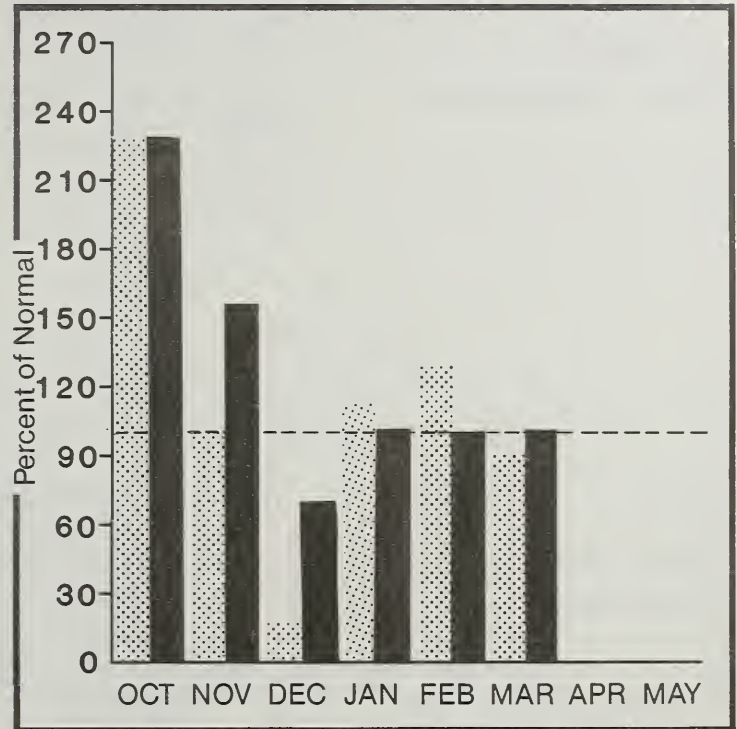
Mountain snowpack\* (inches)





\*Based on selected stations

Maximum  Average   
Minimum  Current 

Precipitation\* (percent of normal)



\*Based on selected stations

Monthly precipitation  Year to date precipitation 

## NORTH PUGET SOUND RIVER BASINS

### WATER SUPPLY OUTLOOK:

Precipitation averaged 89% of normal for March bringing the water year to 102%. Temperatures for March were five degrees above normal. Streamflows for March were above average with the Skagit at 152% and the Skykomish at 126%. Forecasted streamflows for the summer period are for 81% on the Skagit River. Reservoir storage is good with Ross Lake at 935,500 acre feet of usable storage on April 1 or 314% of average.

For more information contact your local Soil Conservation Service office.

# NORTH PUGET SOUND RIVER BASINS

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
SKAGIT RIVER at Newhalem *	APR-SEP	2356.0	1930.0	81	98	66				
	APR-JUL	1972.0	1620.0	82	98	66				
	APR-JUN	1485.0	1220.0	82	98	66				

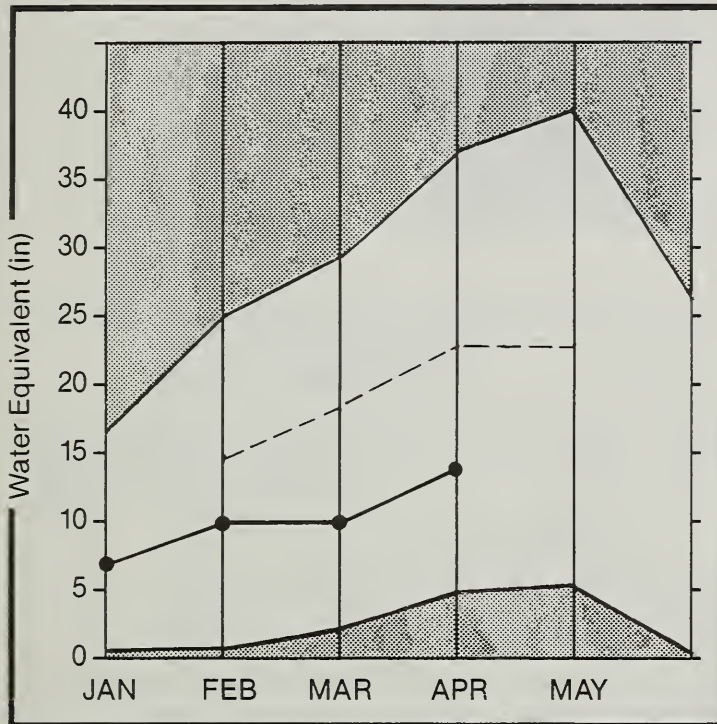
RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVE.	WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE	
ROSS	1404.1	935.5	468.2	298.0	Skagit River	14	89	75
DIABLO RESERVOIR	90.6	89.3	84.4	---	Baker River	8	58	56
GORGE RESERVOIR	9.8	7.7	8.0	---	Cedar River	1	0	0
					Snoqualmie River	1	49	72
					Skykomish River	2	67	62

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.


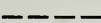



# OLYMPIC

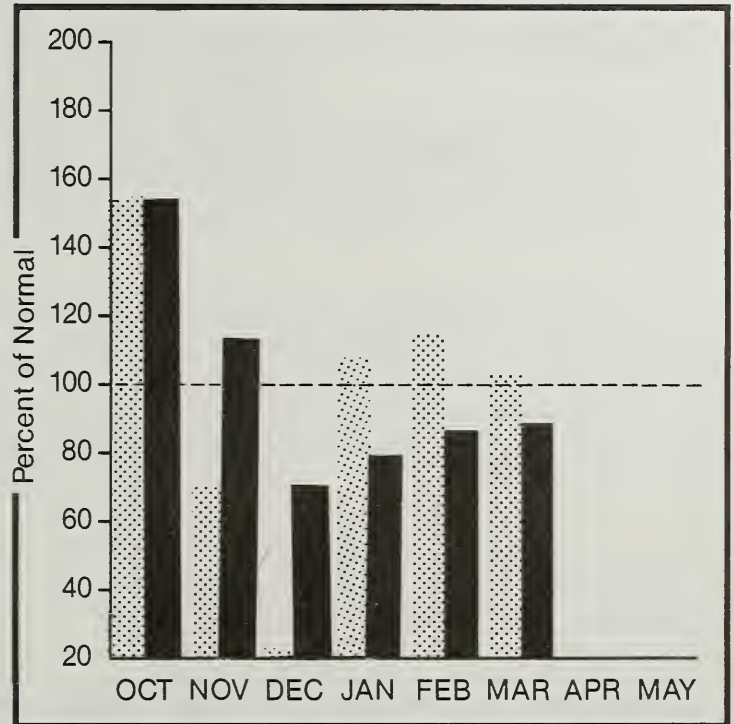
**Mountain snowpack\* (inches)**





\*Based on selected stations

Maximum  Average   
 Minimum  Current 

**Precipitation\* (percent of normal)**



\*Based on selected stations

Monthly precipitation  Year to date precipitation 

## OLYMPIC PENINSULA RIVER BASINS

### WATER SUPPLY OUTLOOK:

Temperatures averaging five degrees above normal for March have reduced the April snowpack. Snowpack was 33% of normal on the Elwah and 43% on the Duwamish. Streamflows are forecasted to be near 73% for the summer. Precipitation for March was average at 102% which brings the water year to date to 88% of average.

For more information contact your local Soil Conservation Service office.

# OLYMPIC PENINSULA RIVER BASINS

## STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	20 YR. AVE. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVE.)	REAS. MAX. (% AVE.)	REAS. MIN. (% AVE.)	PEAK FLOW (CFS)	PEAK DATE	LOW FLOW (CFS)	LOW DATE
DUNGENESS RIVER nr Sequim	APR-SEP	160.0	118.0	73	90	58				
	APR-JUL	130.0	96.0	73	90	58				
	APR-JUN	97.0	72.0	74	91	58				
ELWHA RIVER nr Port Angeles	APR-SEP	553.0	409.0	73	74	74				
	APR-JUL	454.0	336.0	74	74	74				

RESERVOIR STORAGE					(1000AF)	WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF		
		THIS YEAR	LAST YEAR	AVE.			LAST YR.	AVERAGE	
					Dungeness River	1	46	43	
					Morse Creek	1	68	66	
					Elwha River	1	39	33	

\*Corrected for upstream diversions or changes in reservoir storage.  
Average is for 1961-80 period.

## VOLUNTEERS NEEDED

It is no longer news that federal dollars for conservation are decreasing and that state monies must increase if we are to protect our soil and water resources for future generations.

It is news that there is now firmly in place a strong national framework for conservation volunteers.

Volunteerism in Snow Survey is not new. In Washington we have had volunteers in Wenatchee and Yakima for several years. These volunteers are capable of performing the necessary requirements for Snow Survey with and without SCS assistance.

The shock of the newly-enacted Gramm-Rudman-Hollings law that calls for stringent budget cuts to reduce the federal deficit may be with us for quite a while. Meanwhile, we are softening the law's impact by nurturing volunteerism nationwide. At no cost to conservation districts, volunteers are already providing services that their respective states might otherwise find difficult or perhaps impossible to provide.

Consider the great potential for volunteerism within America's 3,000 conservation districts. Thousands of men and women who may be of differing political persuasions are nevertheless unified in their desire to do hands-on work for soil and water conservation.

We know these people well. University students and retirees; school children and youth groups; members of farm organizations, church and civic groups. Their desire to work for conservation is real. It is stronger, perhaps, than we realize. All that we need is the organizational structure for their increased hands-on participation.

Within each of its fifty state offices and at national headquarters, the Soil Conservation Service is mobilizing a major national effort to provide opportunities for conservation volunteers. In each state, a volunteer committee is being organized to assist area and district conservationists in setting up and administering the volunteer program. At SCS national headquarters, professional staffers are assisting the states, and writers and artists are creating multi-media information aids to promote the program.

The many links, then, that create a strong structure for volunteerism - from the Nation's capitol to the states, to the counties and thousands of local communities across the continent - are forged and functioning. Moreover, there are several examples of successful volunteer programs all across the country and here in Washington State. But there is room for more volunteer participation to help us carry out our mission of protecting the soil and water resources.

If you have time and would like to volunteer, contact the local SCS office nearest you. In the yellow pages, look under U. S. Department of Agriculture - Soil Conservation Service.



Snow Survey data can be obtained by calling one of the following local SCS offices:

PULLMAN PMC      Office (509) 335-7376  
                          Farm    (509) 335-9689

OLYMPIA, Area I

Area Office	FTS	434-9454 or 9455
Chehalis		(206) 748-0083
Kelso		(206) 425-1880
Lake Stevens	FTS	392-9259
Lynden		(206) 354-5658
Montesano		(206) 249-5900
Mt. Vernon		(206) 424-5153
Olympia FO	FTS	434-9448
Port Angeles	FTS	396-4277
Port Orchard		(206) 876-5529
Puyallup		(206) 845-5533
Raymond		(206) 942-5945
Renton	FTS	399-3325 or 3326
Vancouver	FTS	422-7631

EPHRATA, AREA II

Area Office	FTS	446-4374 or 4375
Davenport		(509) 725-4181 or 725-1345
Ephrata FO	FTS	446-4385
Moses Lake		(509) 765-3261
Okanogan		(509) 422-2750
Othello		(509) 488-2802
Ritzville		(509) 659-0254
Waterville		(509) 745-8362
Wenatchee	FTS	390-0242 or 0260

YAKIMA, AREA III

Area Office	FTS	446-5865 or 5866
Ellensburg		(509) 925-5375
Goldendale		(509) 773-5823
Pasco	(509)	545-8546 or 8547
Prosser		(509) 786-1923
Sunnyside		(509) 837-7911
Toppenish		(509) 865-4012
Walla Walla	FTS	434-6340
White Salmon	(509)	493-1936
Yakima FO	FTS	446-5909

SPOKANE, AREA IV

Area Office	FTS	439-3726
Cheney	(509)	458-6200, Ext 2309
Clarkston		(509) 758-8012
Colfax		(509) 397-4636
Colville		(509) 684-5067
Dayton		(509) 382-2351
Fairfield		(509) 283-2331
Newport		(509) 447-4217
Pomeroy		(509) 843-1998
Republic		(509) 775-3473
Spokane FO	FTS	439-2120

SOIL SURVEY OFFICES

Bellingham		(206) 676-3520
Inchelium		(509) 722-4395
Nespelem	FTS	439-9431
Wapato		(509) 877-4004







# The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

**Canada:**

Ministry of the Environment, Water  
Investigations Branch, Victoria, British Columbia

**States:**

Washington State Department of Ecology  
Washington State Department of Natural Resources

**Federal:**

Department of the Army  
Corps of Engineers  
U.S. Department of Agriculture  
Forest Service  
U.S. Department of Commerce  
NOAA, National Weather Service  
U.S. Department of the Interior  
Bonneville Power Administration  
Bureau of Reclamation  
Geological Survey  
National Park Service

**Local:**

City of Tacoma  
City of Seattle  
Chelan County P.U.D.  
Pacific Power and Light Company  
Puget Sound Power and Light Company  
Washington Water Power Company  
Snohomish County P.U.D.

**Private:**

Okanogan Irrigation District  
Wenatchee Heights Irrigation District  
Newman Lake Homeowners Association

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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